



# Mercury Wire

CASE STUDY

## Durability and Flexibility is Key

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## ABOUT THE COMPANY

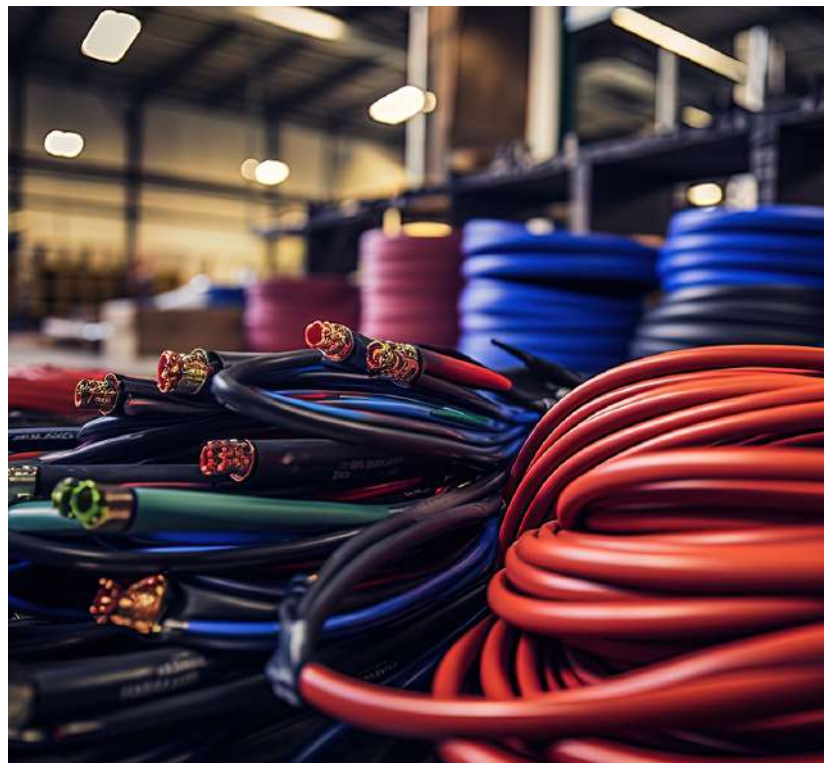
Mercury Wire works with a leading provider of advanced inspection solutions, specializing in the development of innovative equipment designed to address complex challenges in the infrastructure and utilities sectors who operate in several countries around the world.

This provider is renowned for their commitment to quality and reliability, as its primary customers are businesses and municipalities worldwide. One of their main products is the innovative design and manufacturing of buried utility locating instruments and video inspection equipment ensuring the integrity and efficiency of critical piping systems through cutting-edge technology.

Mercury Wire has had an ongoing relationship with this Company for over a decade.

## THE CHALLENGE

The Company continually pushes the limitations of the constituent components, striving to innovate and design products that go further and provide better results for the end users. The primary challenges faced by this Company in its use of another vendor's push cable included:



- **Durability and Reliability Issues:** The push cables were breaking due to the rigorous conditions of their application, which involved navigating through tough, abrasive environments like ceramic and clay pipes. The internal wire needed to stay connected despite the push and pull through these challenging terrains, and failures were leading to breakage. The Company specifically wanted to push the cables significantly beyond the P-trap so that their customers could see the root cause of sewage blockages.
- **Water Exposure Concerns:** There was a critical need to limit water exposure to the cable areas to prevent damage and ensure the longevity and functionality of the push cables in wet or damp environments.
- **Customer Satisfaction and Operational Delays:** The failure of cables not only affected the Company's product quality but also led to significant operational delays for their clients, including government and municipal contracts, where timing and reliability were paramount.

For example, permitting and inspections are fairly standard requirements at new building sites. If there is a push cable failure at this critical point, it can cause significant delays, which are logistically challenging and cost-inefficient. A single-day delay in a building site for a new 100-unit condominium development for example, when inspections are halted because of a technical failure can result in thousands of dollars of productivity loss.

- **Product Performance Under Real-World Conditions:** The push cables, a critical part of the product success, were not extending far enough beyond the p-trap, leading to customer complaints and putting the Company's reputation and client relationships at risk.

Addressing these challenges was crucial for the Company to maintain its market position, ensure customer satisfaction, and fulfill its contracts efficiently. The Mercury Wire team was highly responsive, collaborating and working with members of the Company team to address all of these challenges and more.





## THE SOLUTION

To address the Company's challenges with the new push cable supplied by Mercury Wire, a multi-faceted approach was taken, focusing on improving product durability, reducing water exposure risks, enhancing customer satisfaction, and ensuring the cables' performance under real-world conditions.

The starting point was creating a proactive "cell" team within Mercury Wire. The team was responsible end to end for delivery - from prototyping to production. Through the creation of this dedicated team Mercury Wire was able to significantly decrease the production time, improve quality, and be much more responsive in the prototyping and experimentation phase.

Here's how each challenge was addressed:

### Improving Durability and Reliability:

The initial design was too flexible, almost noodle-like making it extremely difficult to push the cable to the depths necessary. Mercury Wire started rapid prototyping to address the issue and was able to resolve the issue on the second prototype run.

- **Material and Design Optimization:** Mercury Wire and the Company collaborated to enhance the push cable's design and materials, ensuring it could withstand the physical stress of being pushed and pulled through abrasive environments without breaking.
- **Enhanced Manufacturing Process:** Adjustments in the manufacturing process, including better adherence practices for the coax component and insulation coating, were implemented to increase the cable's overall durability and reliability.

## Limiting Water Exposure:

Water exposure, particularly at critical connection points can significantly impact product lifetime. If water enters the cable at those points it can completely disrupt functionality, rendering it inoperable.

- **Waterproofing Solutions:** To address the concern of water exposure, Mercury Wire developed cables with improved waterproofing capabilities, including better sealing and protective materials that prevented water ingress, thereby protecting the internal components of the cable. They experimented with a number of different jackets around the cable, ultimately selecting nylon as the best for water resistance.

## Addressing Customer Satisfaction and Operational Delays:

Mercury Wires solution was to create a Company specific production line, and in so doing was able to substantially reduce the production time. The team quoted 6-8 weeks for initial delivery, and hit the 6 week mark, compared to other push cable manufacturers who were quoted 3-4 times longer.

- **Quality Control and Testing:** Increased quality control measures, including rigorous testing of the cables under conditions simulating real-world use, were adopted to ensure higher reliability and fewer failures in the field.
- **Responsive Support and Inventory Management:** Mercury Wire provided rapid response support for any issues encountered in the field, along with better inventory management and quicker turnaround times for replacements, minimizing operational delays for the Company's clients.

## Ensuring Product Performance Under Real-World Conditions:

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- **Customized Product Development:** Mercury Wire worked closely with the Company to understand the specific challenges and conditions under which the push cables were used. This collaboration led to customized product development that specifically addressed the performance needs identified by the Company, ensuring the cables performed optimally in the intended applications.
- **Continuous Improvement and Feedback Loop:** A continuous improvement process was established, where feedback from the field was regularly collected and analyzed to make ongoing adjustments and enhancements to the product. This proactive approach ensured that the push cables remained well-suited to their application over time.

By addressing these challenges through a combination of technical innovation, improved manufacturing processes, rigorous testing, and close collaboration with the Company, Mercury Wire was able to provide a push cable solution that met the Company's needs for durability, reliability, and performance, thereby enhancing customer satisfaction and operational efficiency.

## THE RESULTS

The concerted efforts by Mercury Wire to address and resolve the challenges faced by the Company with their previous push cable yielded several tangible results that significantly impacted both companies and their clients. Perhaps, most importantly, during the supply chain crisis brought on by Covid, Mercury Wire's ability to produce push cable at the quantity and in the time required meant that the Company was able to sell their products and believe that they successfully sold to customers that they would not have been able to without Mercury Wire's focus and dedication.

The detailed modifications leading to the results were highlighted in the solution section in the following broad categories:

- Enhanced Product Durability and Reliability
- Improved Waterproofing
- Increased Customer Satisfaction
- Operational Efficiency and Reduced Delays

But the most important result that fundamentally changed the overarching service delivery was the creation of a dedicated production line or "cell" focused on the Company's current and future needs as it relates to push cable. This proactive approach is not isolated to the Company, it is Mercury Wire's ongoing commitment to partnering with their customers. This approach supports:

### Strengthened Market Position:

The improvements in the push cable product reinforced the Company's market position. By addressing the key challenges and ensuring the product met the high demands of its application environment, the Company could solidify its reputation as a provider of reliable and high-quality inspection solutions.



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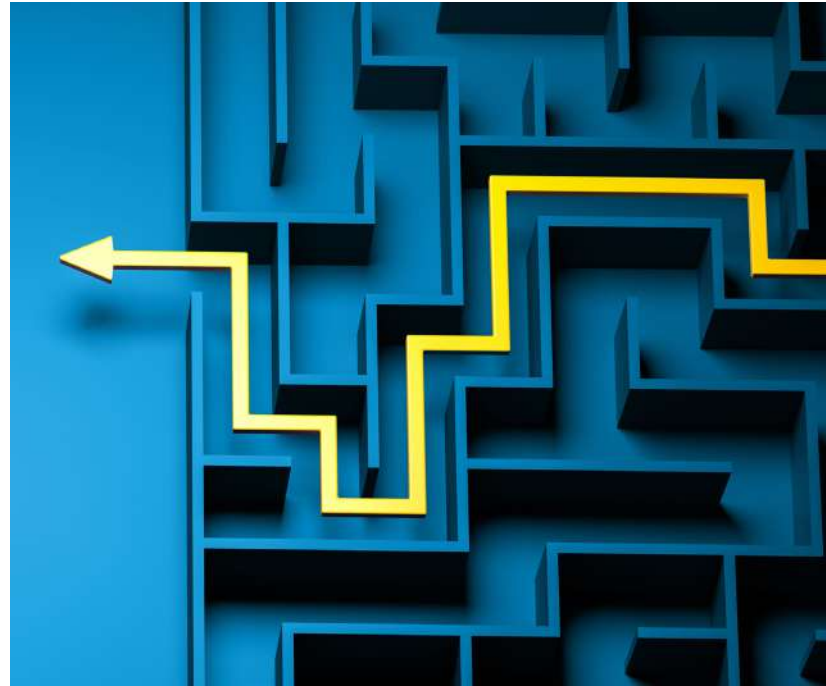
## Feedback Loop and Continuous Improvement:

The establishment of a feedback loop between Mercury Wire, the Company, and the end users allowed for continuous product improvement. Mercury Wire is able to start experimenting and prototyping new improvements as soon as they hear of issues from the end user, reducing the time-to-market for Company improvements. This adaptive approach ensured that the push cables remained competitive and suited to users' evolving needs, fostering innovation and keeping both companies at the forefront of their respective markets.

## Financial Impact:

While specific financial results are not detailed, the combined effects of improved product reliability, reduced operational delays, and increased customer satisfaction likely contributed to a positive financial impact for the Company. Reduced costs associated with repairs, replacements, and operational inefficiencies, coupled with the potential for increased sales due to enhanced market reputation, would contribute to better financial performance.

These results underscore the importance of responsive manufacturing practices, close collaboration between suppliers and clients, and the commitment to continuous improvement in meeting the dynamic needs of the market. Through their efforts, Mercury Wire and the Company were able to overcome significant challenges, leading to a stronger partnership and better outcomes for their end users.



Partner with Mercury Wire for your push cable needs and engage in a partnership that champions continuous innovation and shared success. Let's craft the future together with solutions that elevate your operations. Reach out to us today and let's start a successful journey!